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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/578,720	08/27/2007	Eric Bula	442163/PALL	3358
23548 7590 02/17/2010 LEYDIG VOIT & MAYER, LTD 700 THIRTEENTH ST. NW SUITE 300 WASHINGTON, DC 20005-3960			EXAMINER HOPKINS, ROBERT A	
			ART UNIT	PAPER NUMBER
			1797	
			NOTIFICATION DATE	DELIVERY MODE
			02/17/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/578,720	Applicant(s) BULA ET AL.	
	Examiner Robert A. Hopkins	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-11 and 16-21 is/are rejected.
- 7) ☒ Claim(s) 3,4 and 12-15 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 18, the phrase "preferably" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,2,5,6,7,8,9,10,11,18,19,20,21 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by UK Patent Application(2324484).

UK Patent Application teaches a separator system for separating particulates from air flowing in a path comprising two or more separator stages(11,12 in figure 1) arranged in succession in the direction of flow of air in the path, each stage including a respective housing containing a plurality of side by side inertial separators through which the air flows, the additional total pressure drop produced by each separator stage

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after the first separator stage being less than the additional total pressure drop produced by the preceding separator stage in an upstream direction. UK Patent Application further teaches wherein there are first and second separator stages, the total pressure drop across the first and second stages being less than twice the pressure drop across the first stage. UK Patent Application further teaches wherein each inertial separator includes a vortex generator formed by a helical vane, the pitch of each vane of an upstream stage being greater than the pitch of each vane of a downstream stage, Wherein the vane pitch is between 45mm and 33mm. UK Patent Application further teaches wherein the housing of each stage receives a scavenge air flow for removing from the housing particulates separated from the air by the stage, the volume of scavenge air flow supplied to each housing decreasing in a downstream direction. UK Patent Application further teaches wherein the scavenge air flow decreases by equal amounts between stages. UK Patent Application further teaches wherein each stage includes a different number of inertial separators, the number of inertial separators in each stage decreasing in a downstream direction. UK Patent Application further teaches wherein each stage has, in relation to the succeeding stage in a downstream direction, between 5% and 30% less inertial separators. UK Patent Application further teaches wherein an uninterrupted flow path is provided between successive stages. UK Patent Application further teaches wherein the system removes at least 99.5% of particulates in the air. UK Patent Application further teaches an air intake for an engine including a separator system according to claim 1. UK Patent

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Application further teaches a turbocharger between the air intake and the engine, air flowing from the turbocharger to the engine in an uninterrupted path.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over UK Patent Application(2324484) taken together with Koslow(4537608).

UK Patent Application teaches all of the limitations of claim 16 but is silent as to wherein an barrier filter is provided downstream of the last stage in the direction of flow of the air in the path. Koslow teaches a plurality of vortex separators(16) arranged across an airflow opening, and a depth filter(15) downstream of the plurality of vortex separators. It would have been obvious to someone of ordinary skill in the art at the time of the invention to provide a barrier filter downstream of the first and second stages of vortex separators in order to provide final filtration before an airflow exits a separator system.

DETAILED ACTION

Allowable Subject Matter

Claims 3,4,12-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 3 recites “and comprising a third separator stage downstream of the second separator stage in the direction of flow of air in said path”. UK Patent Application teaches a first and second separator stage. It would not have been obvious to someone of ordinary skill in the art at the time of the invention to provide a third separator stage downstream of the second separator stage in the direction of flow of air in said path because UK Patent Application does not suggest such a modification. Claim 4 depends on claim 3 and hence would also be allowable upon incorporation of claims 2 and 3 into claim 1.

Claim 12 recites “in which there are at least three separator stages, wherein the spacing between the stages is equal”. UK Patent Application teaches a first and second separator stage. It would not have been obvious to someone of ordinary skill in the art at the time of the invention to provide at least three separator stages, wherein the spacing between the stages is equal because UK Patent Application does not suggest such a modification. Claim 15 depends on claim 12 and hence would also be allowable upon incorporation of claim 12 into claim 1.

Claim 13 recites “in which there are at least three separator stages, wherein the spacing between the stages is not equal”. UK Patent Application teaches a first and second separator stage. It would not have been obvious to someone of ordinary skill in the art at the time of the invention to provide at least three separator stages, wherein the spacing between the stages is not equal because UK Patent Application does not suggest such a modification. Claim 14 depends on claim 13 and hence would also be allowable upon incorporation of claim 13 into claim 1.

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The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sheidler et al(6932849), De Filliers et al(5403367), Herman et al(5472463), and Krisko et al(7491254) teaches a single stage of vortex separators.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A. Hopkins whose telephone number is 571-272-1159. The examiner can normally be reached on Monday-Thursday, 7:30am-5pm, every Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Rah
February 2, 2010

/Robert A Hopkins/
Primary Examiner, Art Unit 1797

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